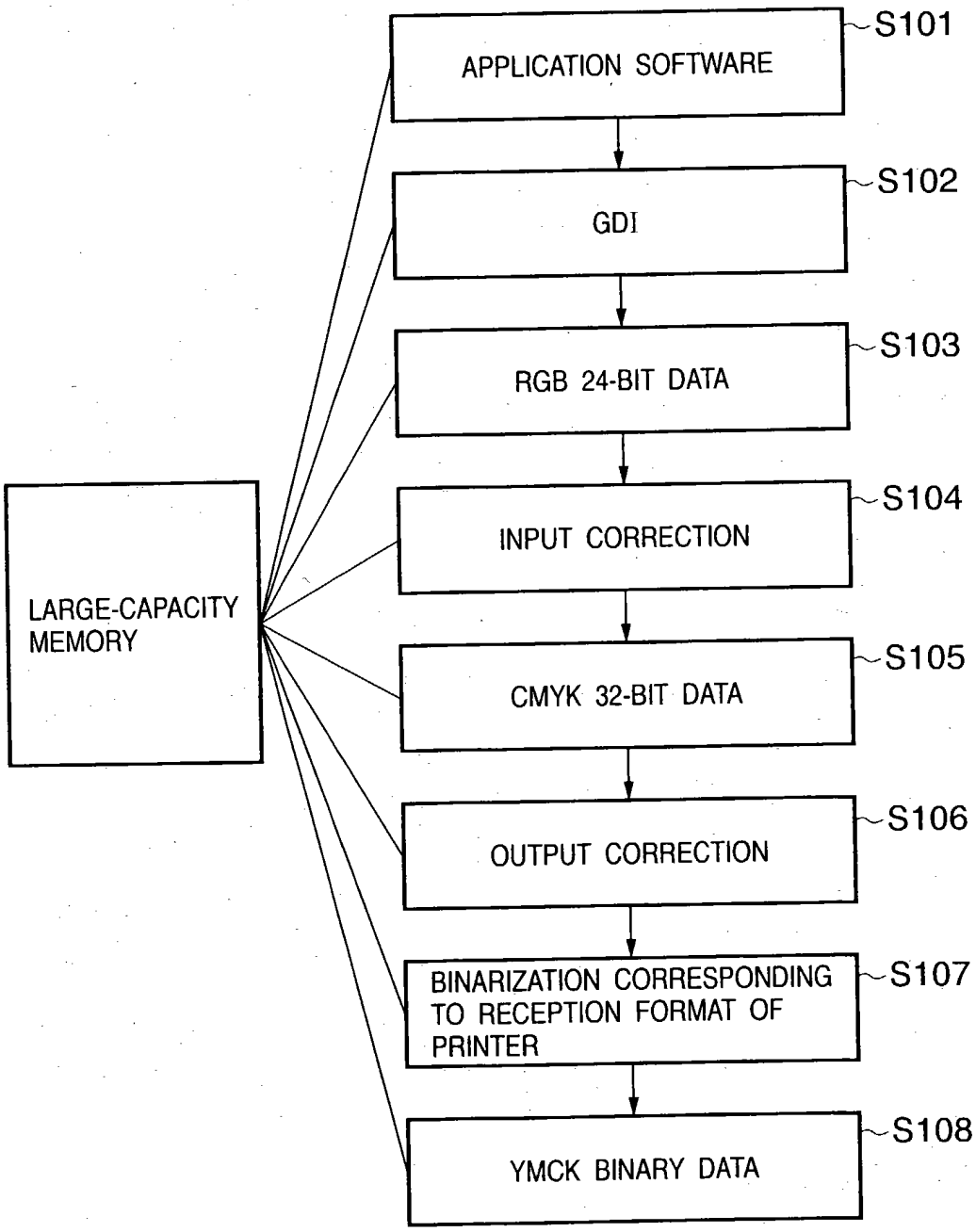
FIG. 1


APPLICATION SOFTWARE
S101
GDI
S102
RGB 24-BIT DATA
S103
INPUT CORRECTION
S104
LARGE-CAPACITY MEMORY
CMYK 32-BIT DATA
S105
OUTPUT CORRECTION
S106
BINARIZATION CORRESPONDING TO RECEPTION FORMAT OF PRINTER
S107
YMCK BINARY DATA
S108

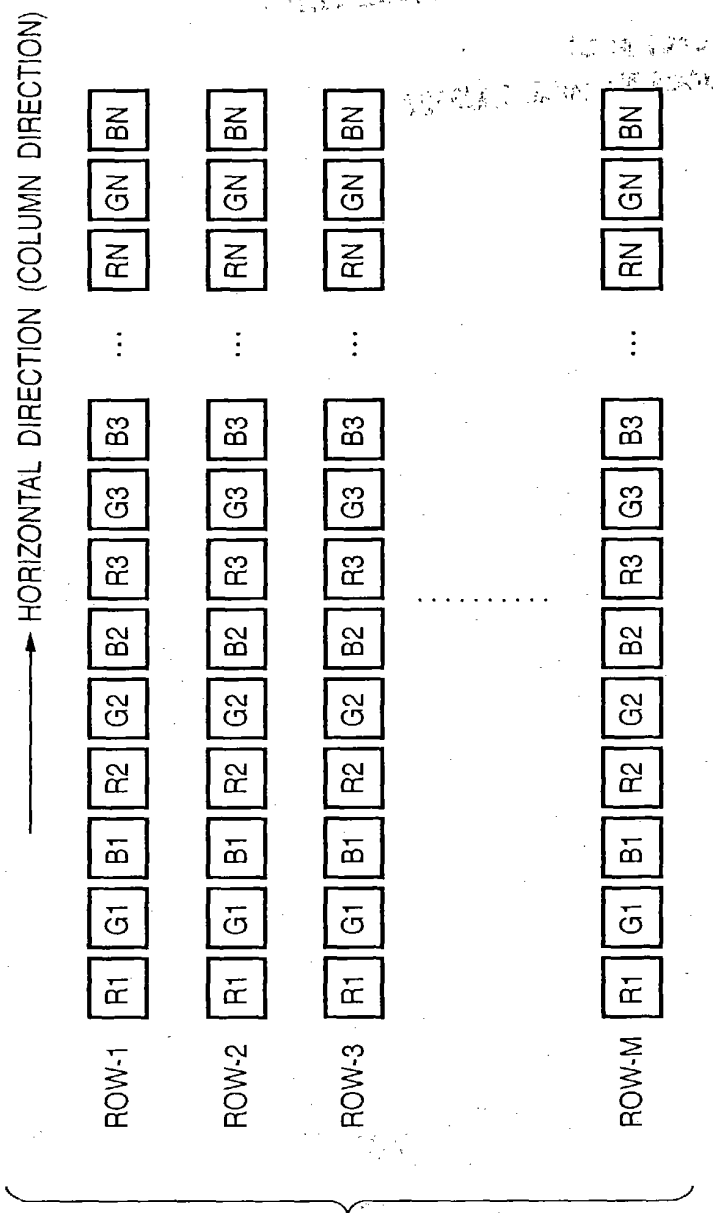

HORIZONTAL DIRECTION (COLUMN DIRECTION)
ROW-1
ROW-2
ROW-3
ROW-M
R1 G1 B1 R2 G2 B2 R3 G3 B3 ... RN GN BN

FIG. 2

FIG. 3

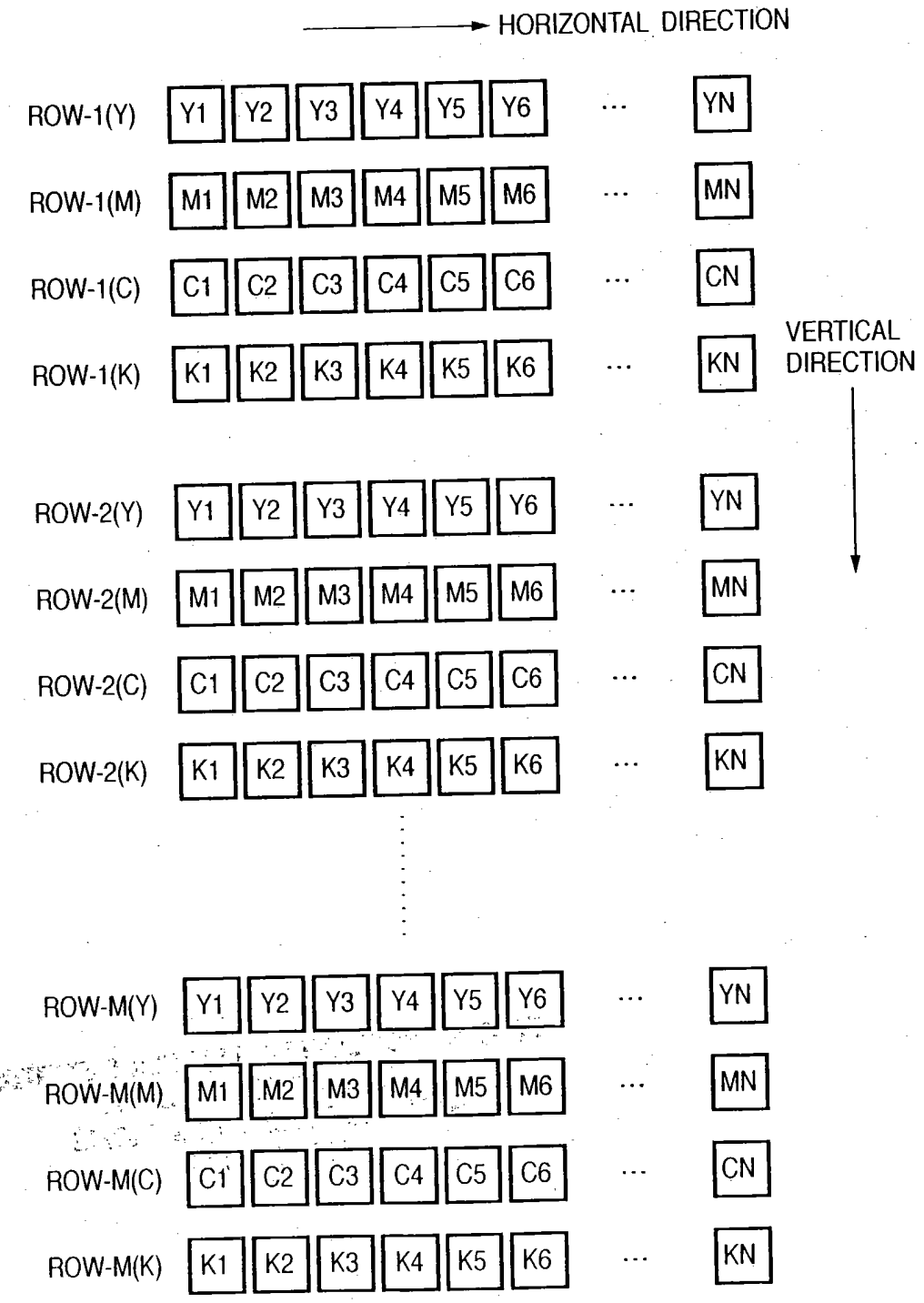

HORIZONTAL DIRECTION
VERTICAL DIRECTION
ROW-1(Y) Y1 Y2 Y3 Y4 Y5 Y6 ... YN
ROW-1(M) M1 M2 M3 M4 M5 M6 ... MN
ROW-1(C) C1 C2 C3 C4 C5 C6 ... CN
ROW-1(K) K1 K2 K3 K4 K5 K6 ... KN
ROW-2(Y) Y1 Y2 Y3 Y4 Y5 Y6 ... YN
ROW-2(M) M1 M2 M3 M4 M5 M6 ... MN
ROW-2(C) C1 C2 C3 C4 C5 C6 ... CN
ROW-2(K) K1 K2 K3 K4 K5 K6 ... KN
ROW-M(Y) Y1 Y2 Y3 Y4 Y5 Y6 ... YN
ROW-M(M) M1 M2 M3 M4 M5 M6 ... MN
ROW-M(C) C1 C2 C3 C4 C5 C6 ... CN
ROW-M(K) K1 K2 K3 K4 K5 K6 ... KN

FIG. 4

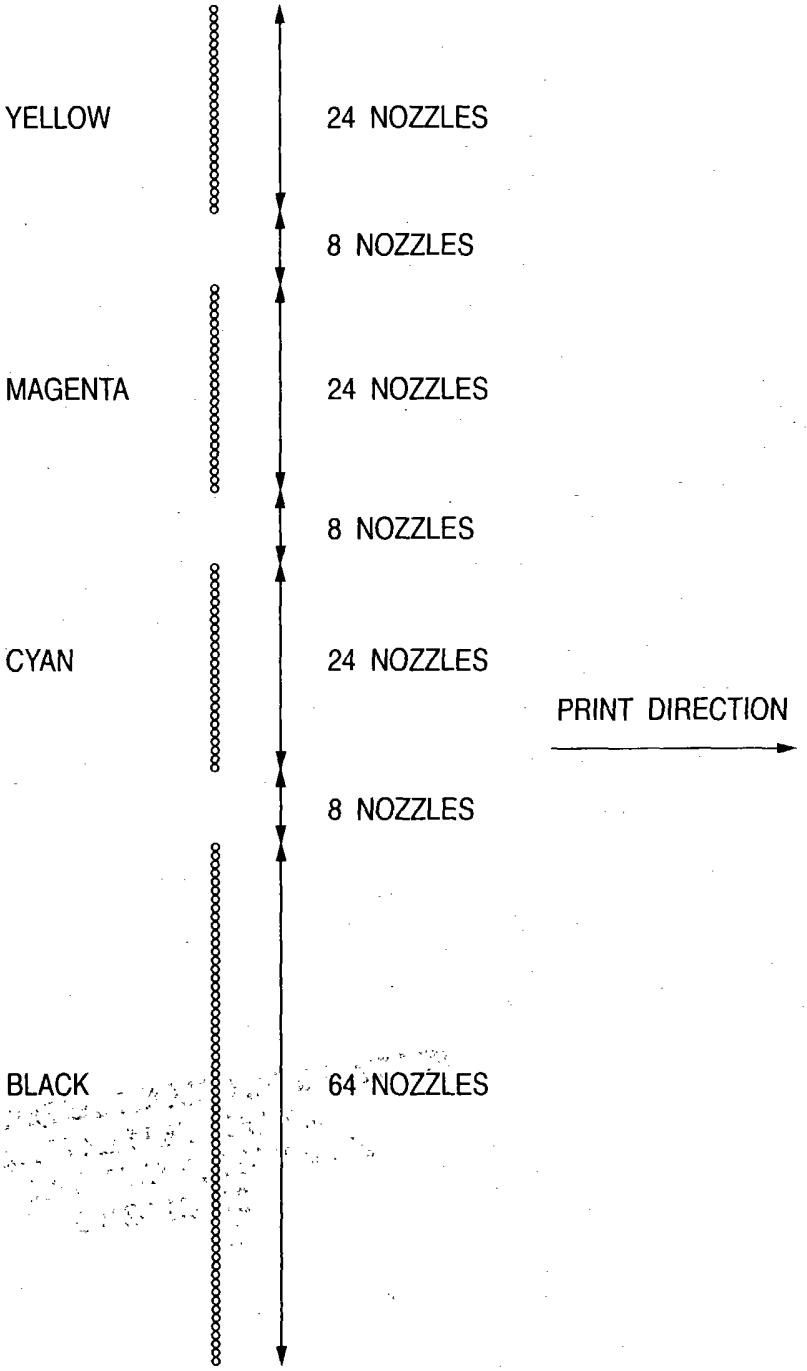

YELLOW
24 NOZZLES
8 NOZZLES
MAGENTA
24 NOZZLES
8 NOZZLES
CYAN
24 NOZZLES
PRINT DIRECTION
8 NOZZLES
BLACK
64 NOZZLES

FIG. 5A

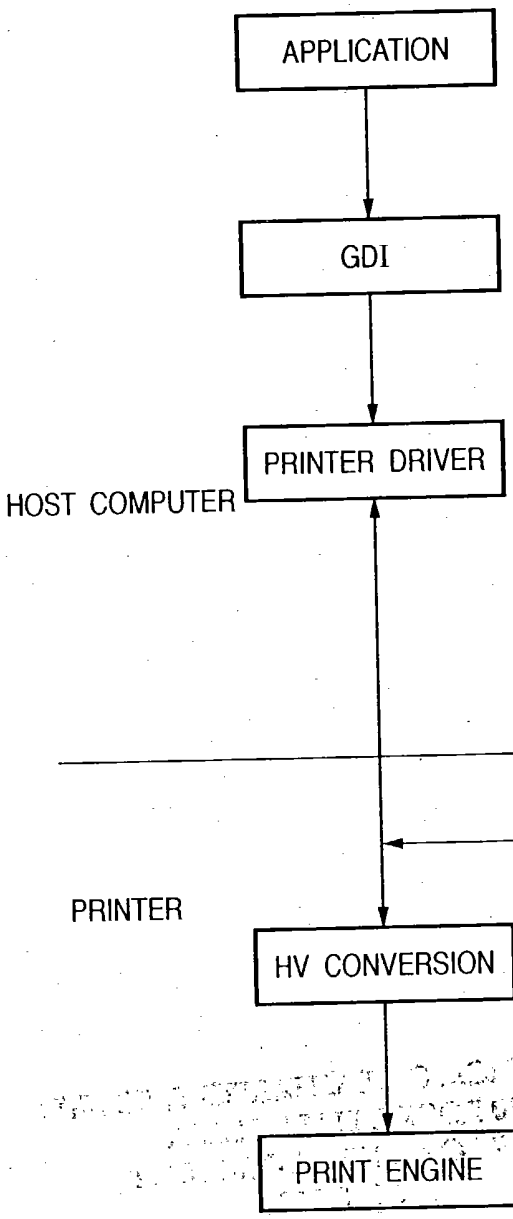

APPLICATION
GDI
PRINTER DRIVER
HOST COMPUTER
TWO-WAY I/F
PRINTER
HV CONVERSION
PRINT ENGINE

FIG. 5B

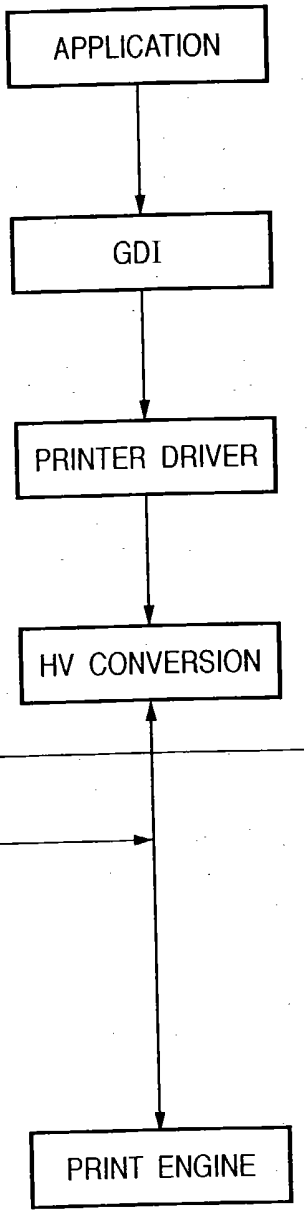
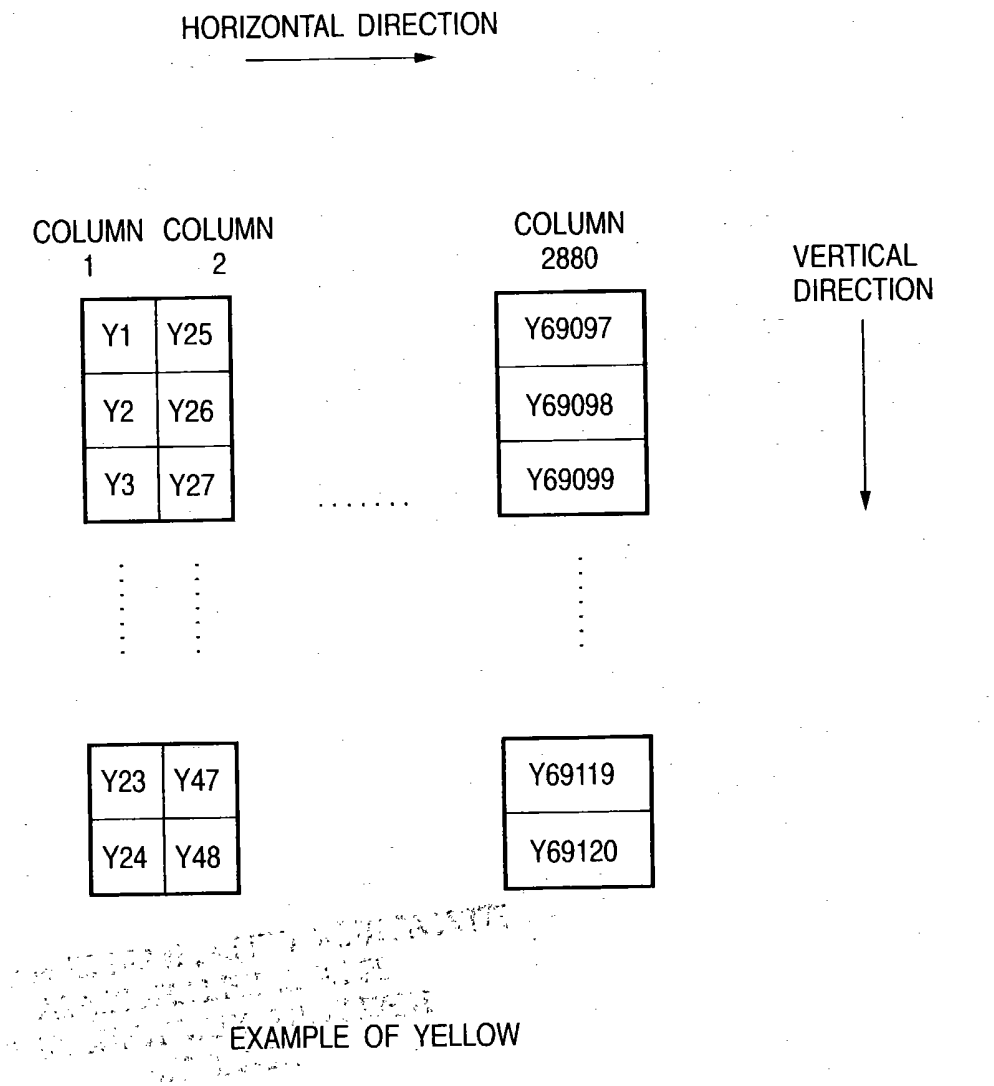

APPLICATION
GDI
PRINTER DRIVER
HV CONVERSION
PRINT ENGINE

FIG. 6



EXAMPLE OF YELLOW

FIG. 7

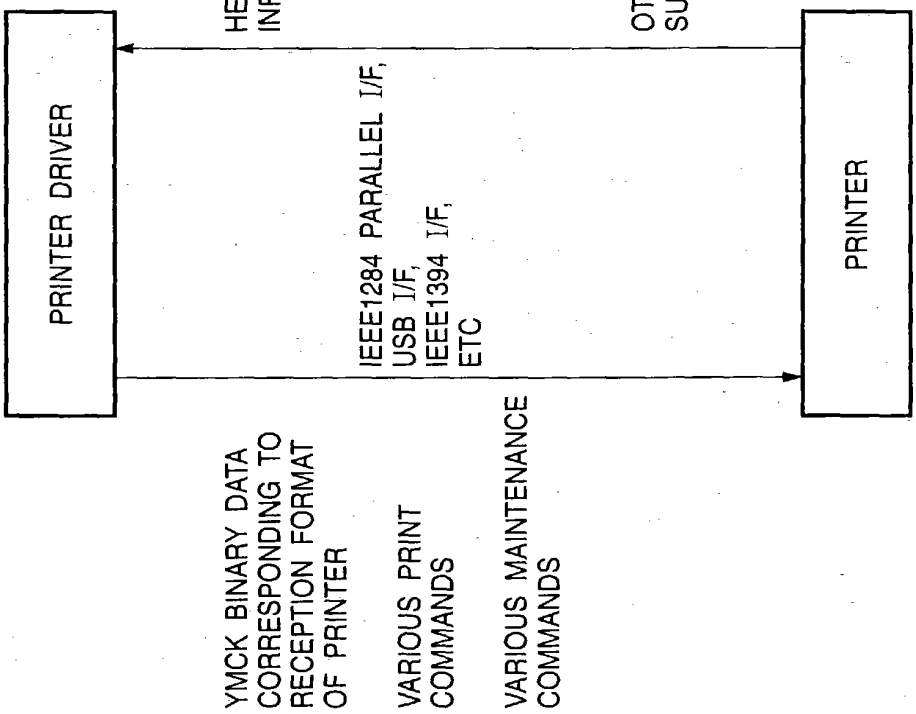

PRINTER DRIVER
PRINTER
HEAD INFORMATION
HEAD TYPE INFORMATION (COLOR, BLACK, ETC)
INFORMATION OF NUMBER OF NOZZLES
NOZZLE LAYOUT INFORMATION
NOZZLE TEMPERATURE INFORMATION
OTHER PRINTER INFORMATION SUCH AS ERROR, ETC
IEEE1284 PARALLEL I/F, USB I/F, IEEE1394 I/F, ETC
YMCK BINARY DATA CORRESPONDING TO RECEPTION FORMAT OF PRINTER
VARIOUS PRINT COMMANDS
VARIOUS MAINTENANCE COMMANDS

FIG. 8

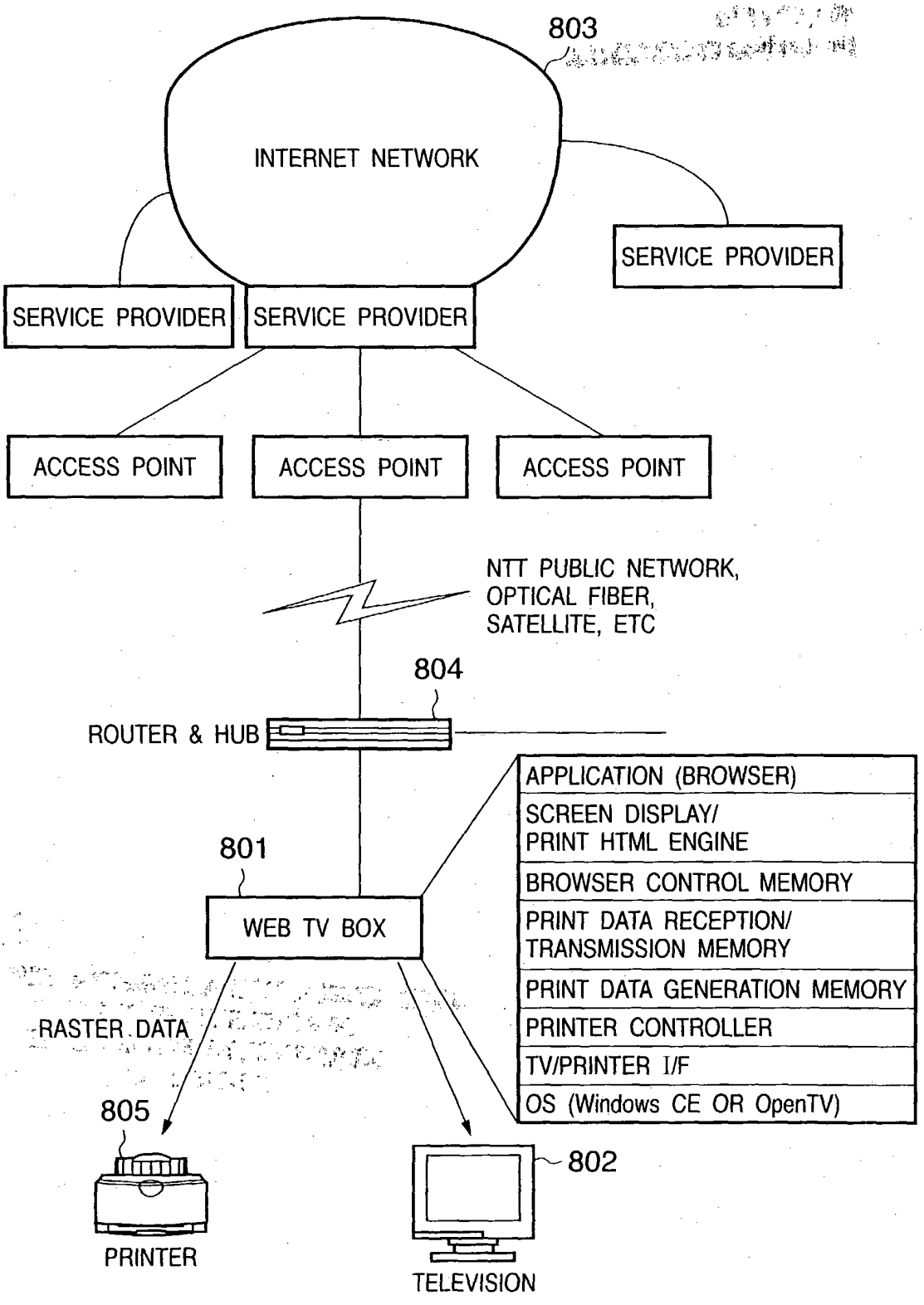

803
INTERNET NETWORK
SERVICE PROVIDER
SERVICE PROVIDER
SERVICE PROVIDER
ACCESS POINT
ACCESS POINT
ACCESS POINT
NTT PUBLIC NETWORK,
OPTICAL FIBER,
SATELLITE, ETC
804
ROUTER & HUB
801
WEB TV BOX
APPLICATION (BROWSER)
SCREEN DISPLAY/
PRINT HTML ENGINE
BROWSER CONTROL MEMORY
PRINT DATA RECEPTION/
TRANSMISSION MEMORY
PRINT DATA GENERATION MEMORY
PRINTER CONTROLLER
TV/PRINTER I/F
OS (Windows CE OR OpenTV)
RASTER DATA
805
PRINTER
802
TELEVISION

FIG. 9

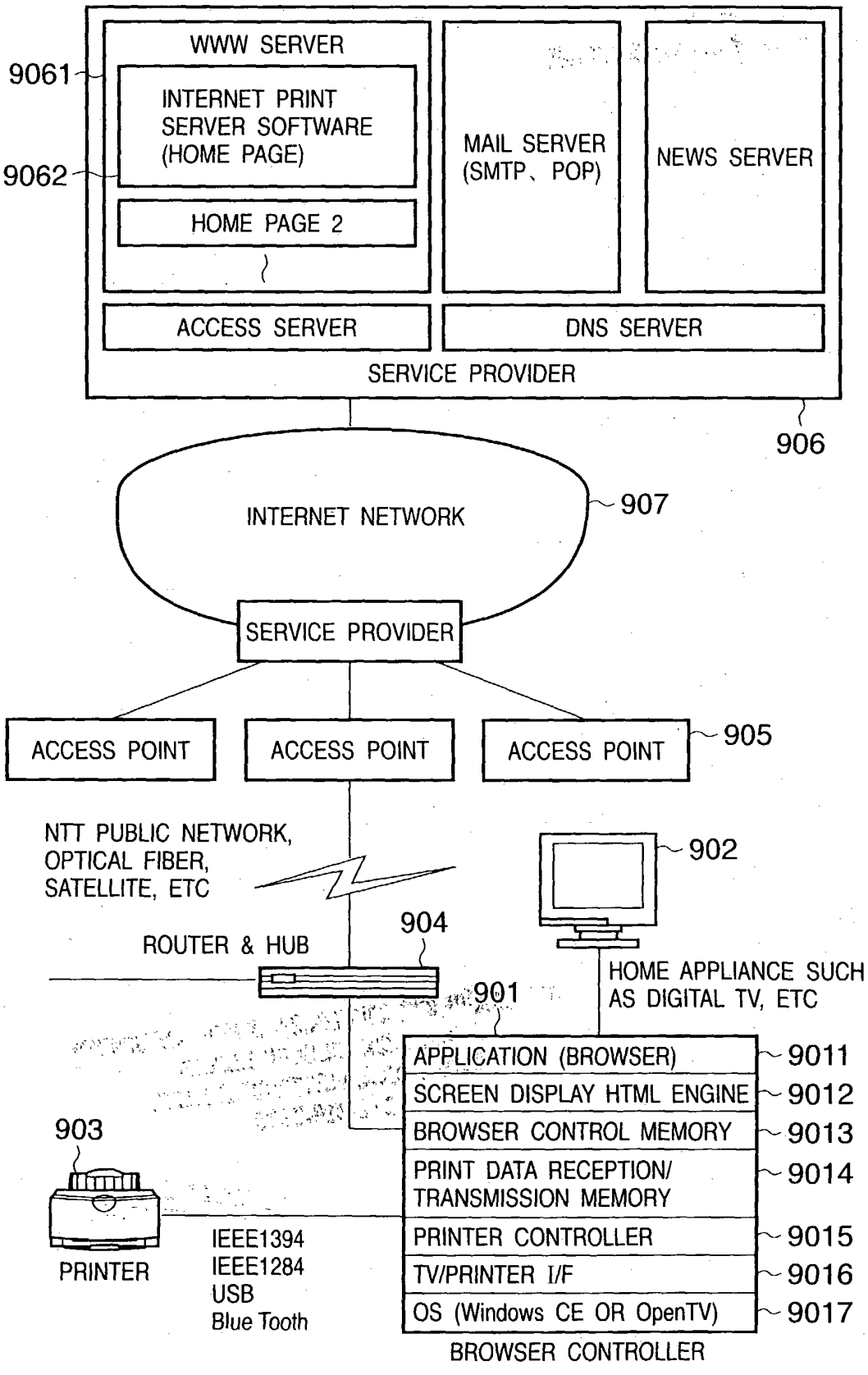

WWW SERVER
9061
INTERNET PRINT SERVER SOFTWARE (HOME PAGE)
9062
HOME PAGE 2
MAIL SERVER (SMTP、POP)
NEWS SERVER
ACCESS SERVER
DNS SERVER
SERVICE PROVIDER
906
INTERNET NETWORK
907
SERVICE PROVIDER
ACCESS POINT
ACCESS POINT
ACCESS POINT
905
NTT PUBLIC NETWORK, OPTICAL FIBER, SATELLITE, ETC
902
ROUTER & HUB
904
901
HOME APPLIANCE SUCH AS DIGITAL TV, ETC
APPLICATION (BROWSER) 9011
SCREEN DISPLAY HTML ENGINE 9012
BROWSER CONTROL MEMORY 9013
PRINT DATA RECEPTION/ TRANSMISSION MEMORY 9014
PRINTER CONTROLLER 9015
TV/PRINTER I/F 9016
OS (Windows CE OR OpenTV) 9017
903
PRINTER
IEEE1394
IEEE1284
USB
Blue Tooth
BROWSER CONTROLLER

FIG. 10

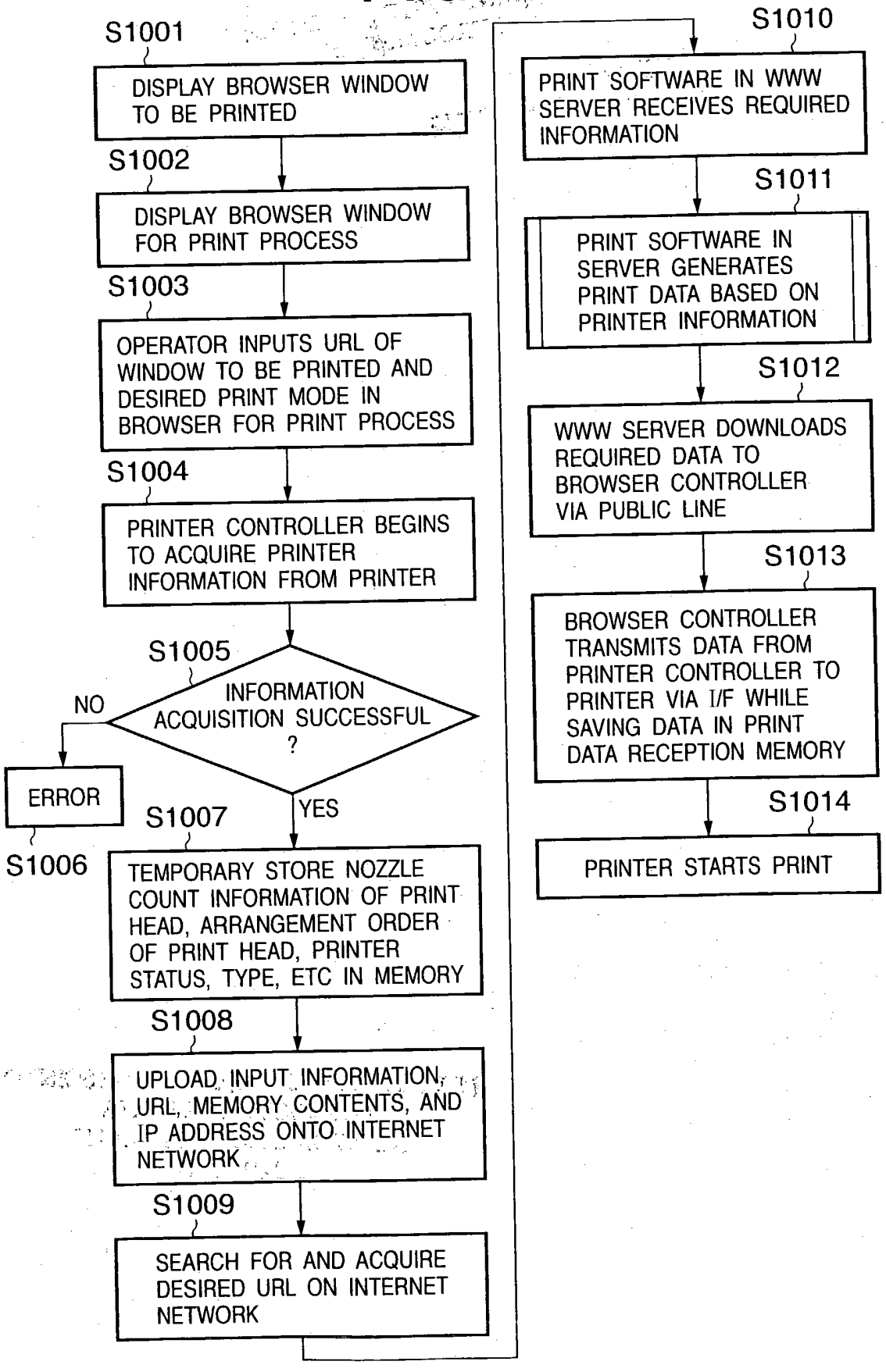
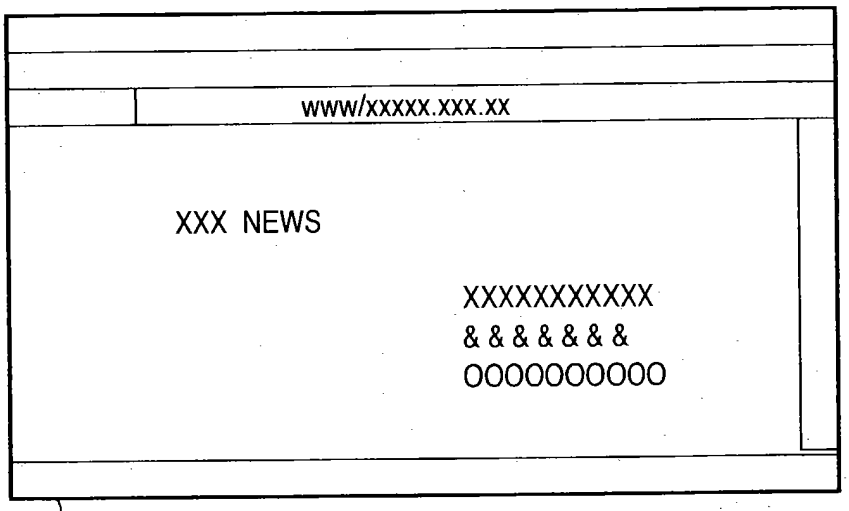
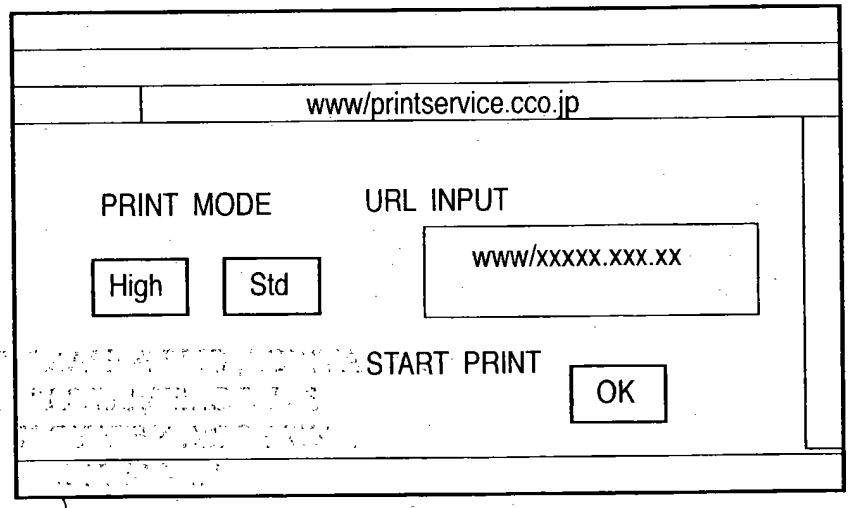

S1001
DISPLAY BROWSER WINDOW TO BE PRINTED
S1002
DISPLAY BROWSER WINDOW FOR PRINT PROCESS
S1003
OPERATOR INPUTS URL OF WINDOW TO BE PRINTED AND DESIRED PRINT MODE IN BROWSER FOR PRINT PROCESS
S1004
PRINTER CONTROLLER BEGINS TO ACQUIRE PRINTER INFORMATION FROM PRINTER
S1005
INFORMATION ACQUISITION SUCCESSFUL ?
NO
ERROR
S1006
YES
S1007
TEMPORARY STORE NOZZLE COUNT INFORMATION OF PRINT HEAD, ARRANGEMENT ORDER OF PRINT HEAD, PRINTER STATUS, TYPE, ETC IN MEMORY
S1008
UPLOAD INPUT INFORMATION, URL, MEMORY CONTENTS, AND IP ADDRESS ONTO INTERNET NETWORK
S1009
SEARCH FOR AND ACQUIRE DESIRED URL ON INTERNET NETWORK
S1010
PRINT SOFTWARE IN WWW SERVER RECEIVES REQUIRED INFORMATION
S1011
PRINT SOFTWARE IN SERVER GENERATES PRINT DATA BASED ON PRINTER INFORMATION
S1012
WWW SERVER DOWNLOADS REQUIRED DATA TO BROWSER CONTROLLER VIA PUBLIC LINE
S1013
BROWSER CONTROLLER TRANSMITS DATA FROM PRINTER CONTROLLER TO PRINTER VIA I/F WHILE SAVING DATA IN PRINT DATA RECEPTION MEMORY
S1014
PRINTER STARTS PRINT

FIG. 11



1101 BROWSER WINDOW TO BE PRINTED (DESIRED PRINT WINDOW)



1102 BROWSER WINDOW FOR PRINT PROCESS

FIG. 12

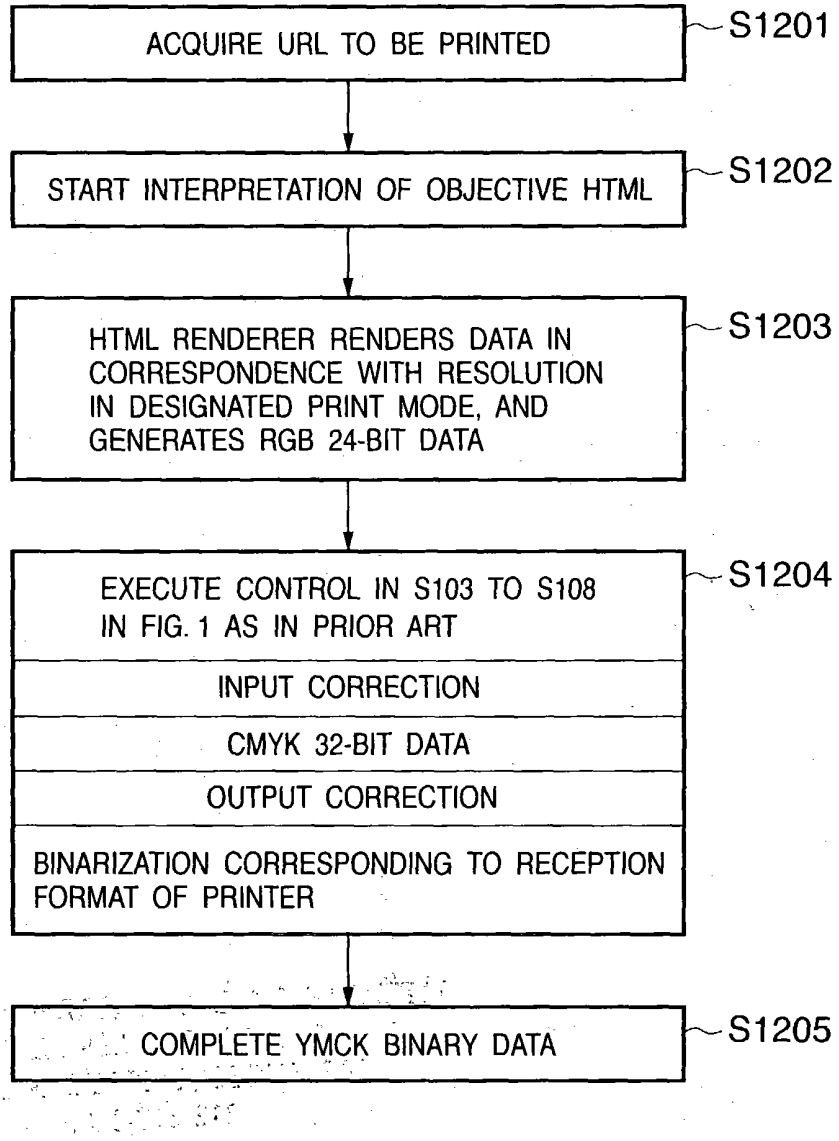

ACQUIRE URL TO BE PRINTED
S1201
START INTERPRETATION OF OBJECTIVE HTML
S1202
HTML RENDERER RENDERS DATA IN CORRESPONDENCE WITH RESOLUTION IN DESIGNATED PRINT MODE, AND GENERATES RGB 24-BIT DATA
S1203
EXECUTE CONTROL IN S103 TO S108 IN FIG. 1 AS IN PRIOR ART
INPUT CORRECTION
CMYK 32-BIT DATA
OUTPUT CORRECTION
BINARIZATION CORRESPONDING TO RECEPTION FORMAT OF PRINTER
S1204
COMPLETE YMCK BINARY DATA
S1205

FIG. 13

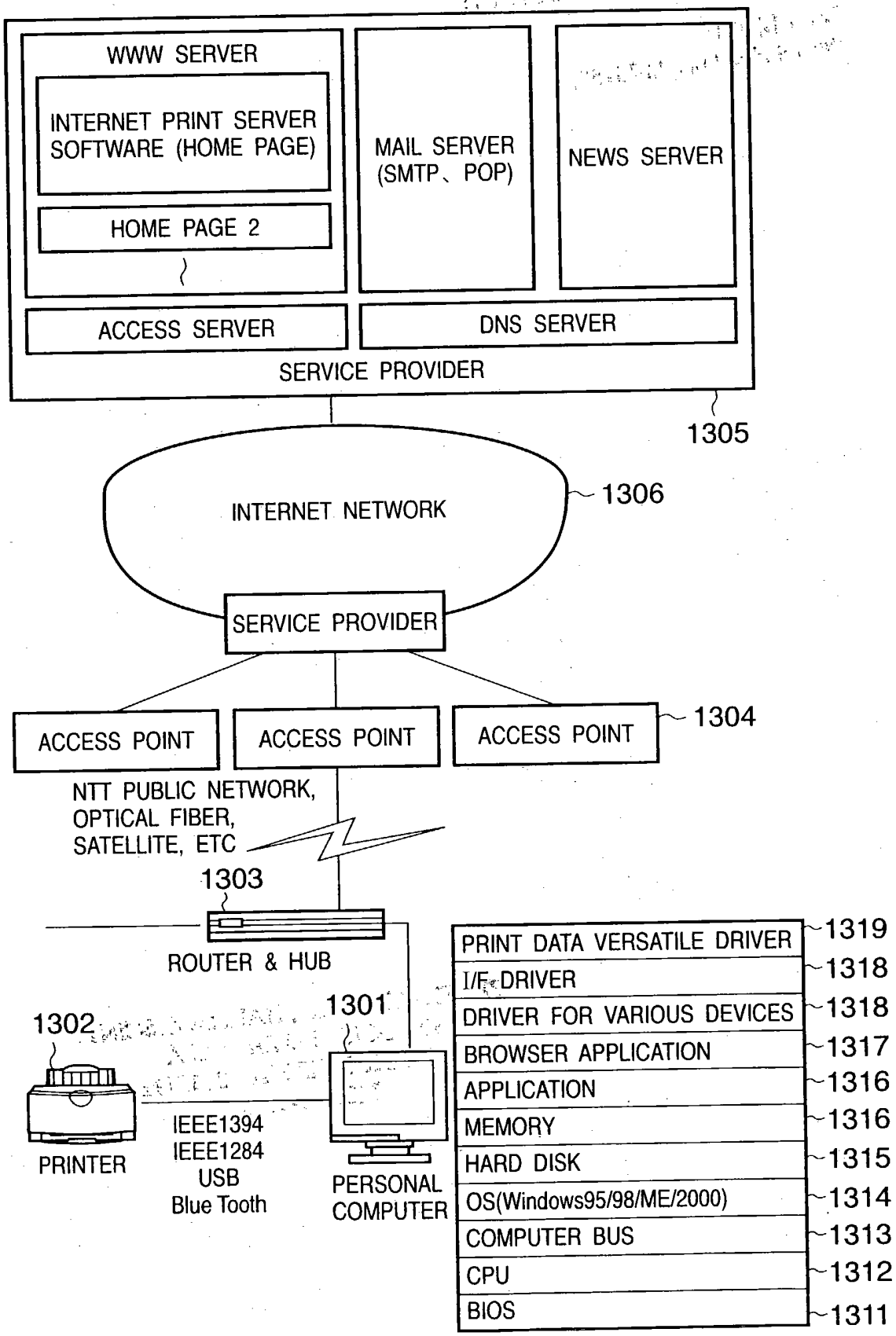

WWW SERVER
INTERNET PRINT SERVER SOFTWARE (HOME PAGE)
HOME PAGE 2
MAIL SERVER (SMTP、POP)
NEWS SERVER
ACCESS SERVER
DNS SERVER
SERVICE PROVIDER
1305
INTERNET NETWORK
1306
SERVICE PROVIDER
ACCESS POINT
ACCESS POINT
ACCESS POINT
1304
NTT PUBLIC NETWORK, OPTICAL FIBER, SATELLITE, ETC
1303
ROUTER & HUB
1302
1301
PRINTER
IEEE1394
IEEE1284
USB
Blue Tooth
PERSONAL COMPUTER
PRINT DATA VERSATILE DRIVER
1319
I/F DRIVER
1318
DRIVER FOR VARIOUS DEVICES
1318
BROWSER APPLICATION
1317
APPLICATION
1316
MEMORY
1316
HARD DISK
1315
OS(Windows95/98/ME/2000)
1314
COMPUTER BUS
1313
CPU
1312
BIOS
1311

FIG. 14

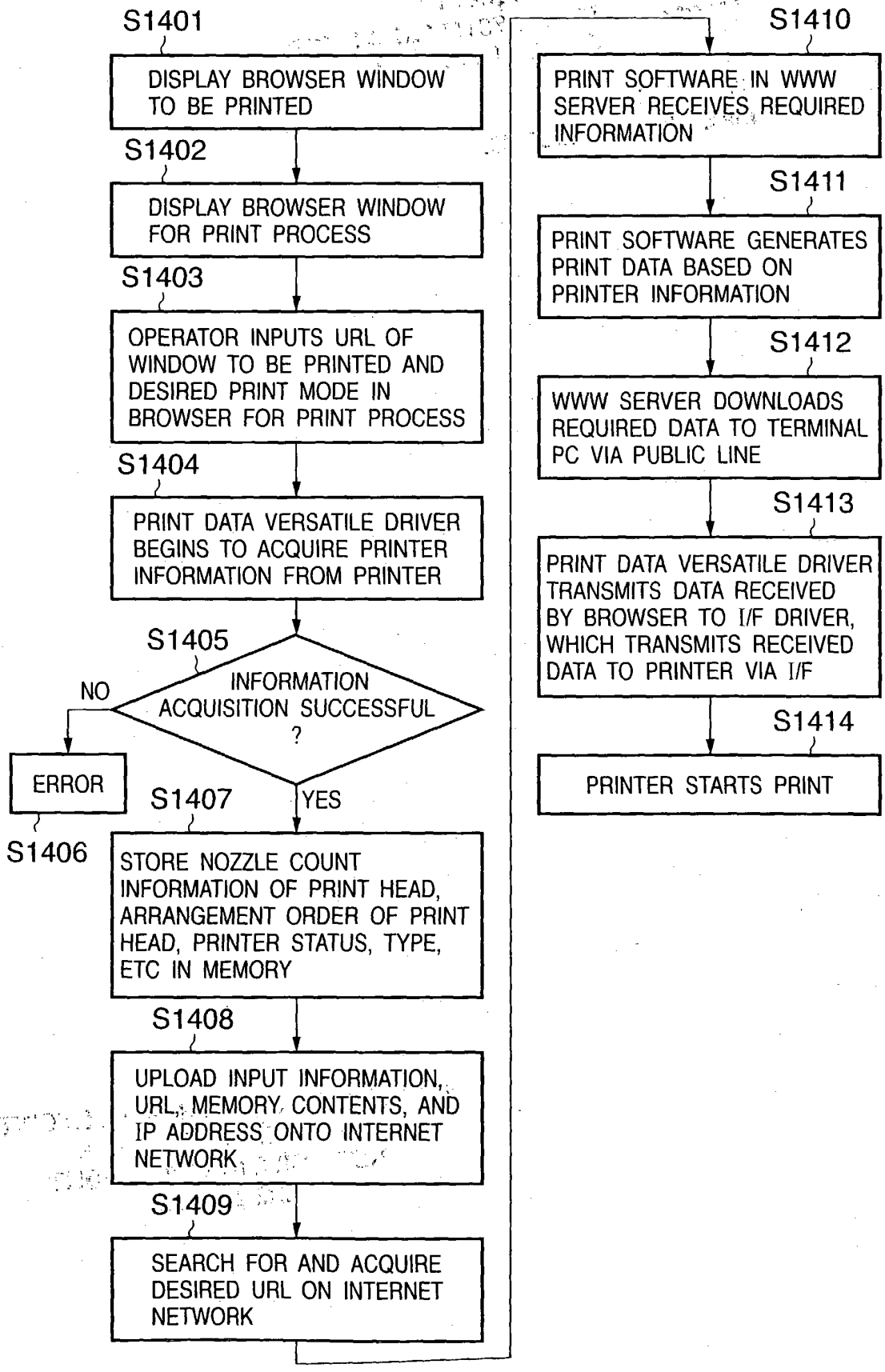

S1401
DISPLAY BROWSER WINDOW TO BE PRINTED
S1402
DISPLAY BROWSER WINDOW FOR PRINT PROCESS
S1403
OPERATOR INPUTS URL OF WINDOW TO BE PRINTED AND DESIRED PRINT MODE IN BROWSER FOR PRINT PROCESS
S1404
PRINT DATA VERSATILE DRIVER BEGINS TO ACQUIRE PRINTER INFORMATION FROM PRINTER
S1405
INFORMATION ACQUISITION SUCCESSFUL ?
NO
YES
ERROR
S1406
S1407
STORE NOZZLE COUNT INFORMATION OF PRINT HEAD, ARRANGEMENT ORDER OF PRINT HEAD, PRINTER STATUS, TYPE, ETC IN MEMORY
S1408
UPLOAD INPUT INFORMATION, URL, MEMORY CONTENTS, AND IP ADDRESS ONTO INTERNET NETWORK
S1409
SEARCH FOR AND ACQUIRE DESIRED URL ON INTERNET NETWORK
S1410
PRINT SOFTWARE IN WWW SERVER RECEIVES REQUIRED INFORMATION
S1411
PRINT SOFTWARE GENERATES PRINT DATA BASED ON PRINTER INFORMATION
S1412
WWW SERVER DOWNLOADS REQUIRED DATA TO TERMINAL PC VIA PUBLIC LINE
S1413
PRINT DATA VERSATILE DRIVER TRANSMITS DATA RECEIVED BY BROWSER TO I/F DRIVER, WHICH TRANSMITS RECEIVED DATA TO PRINTER VIA I/F
S1414
PRINTER STARTS PRINT

FIG. 15

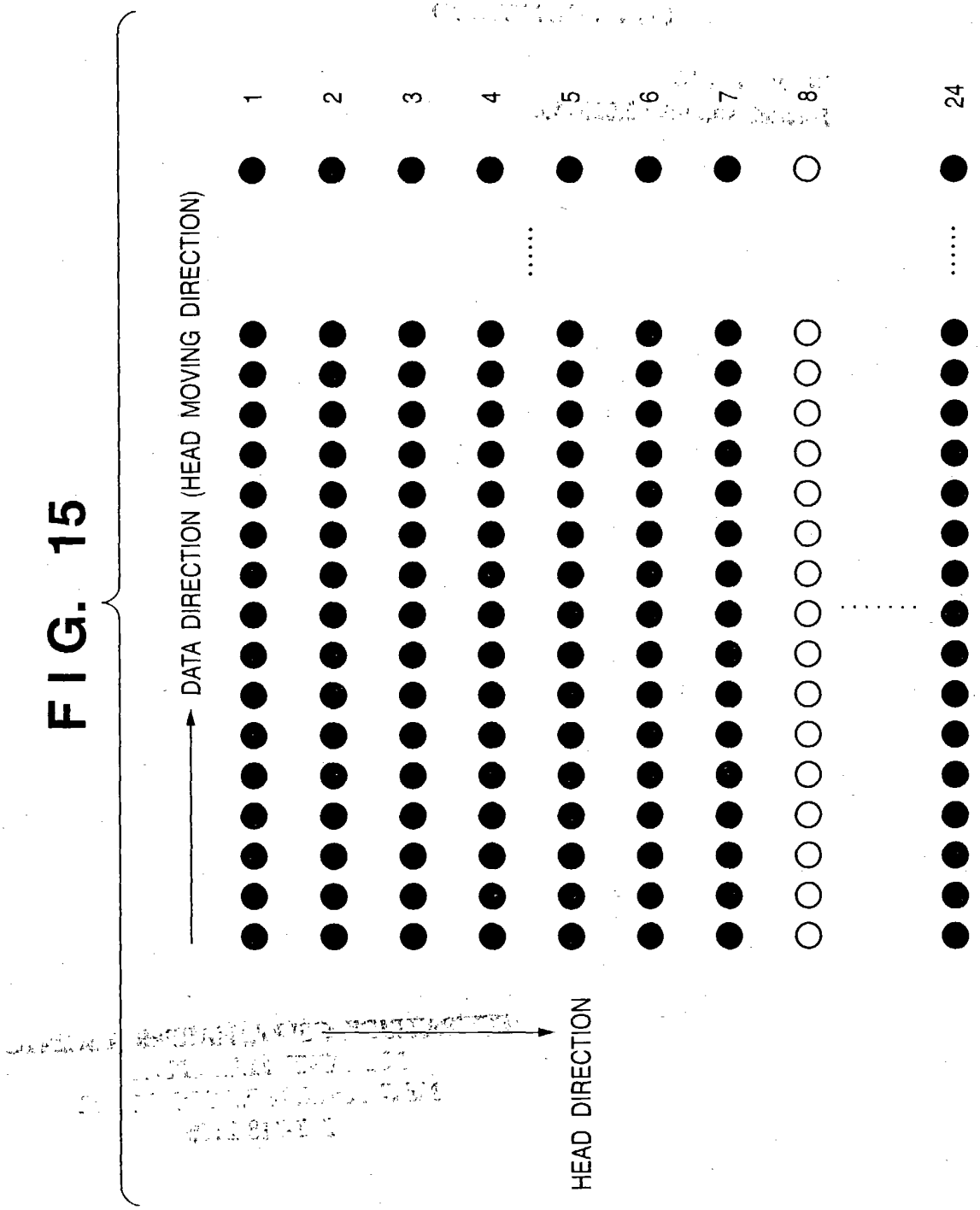
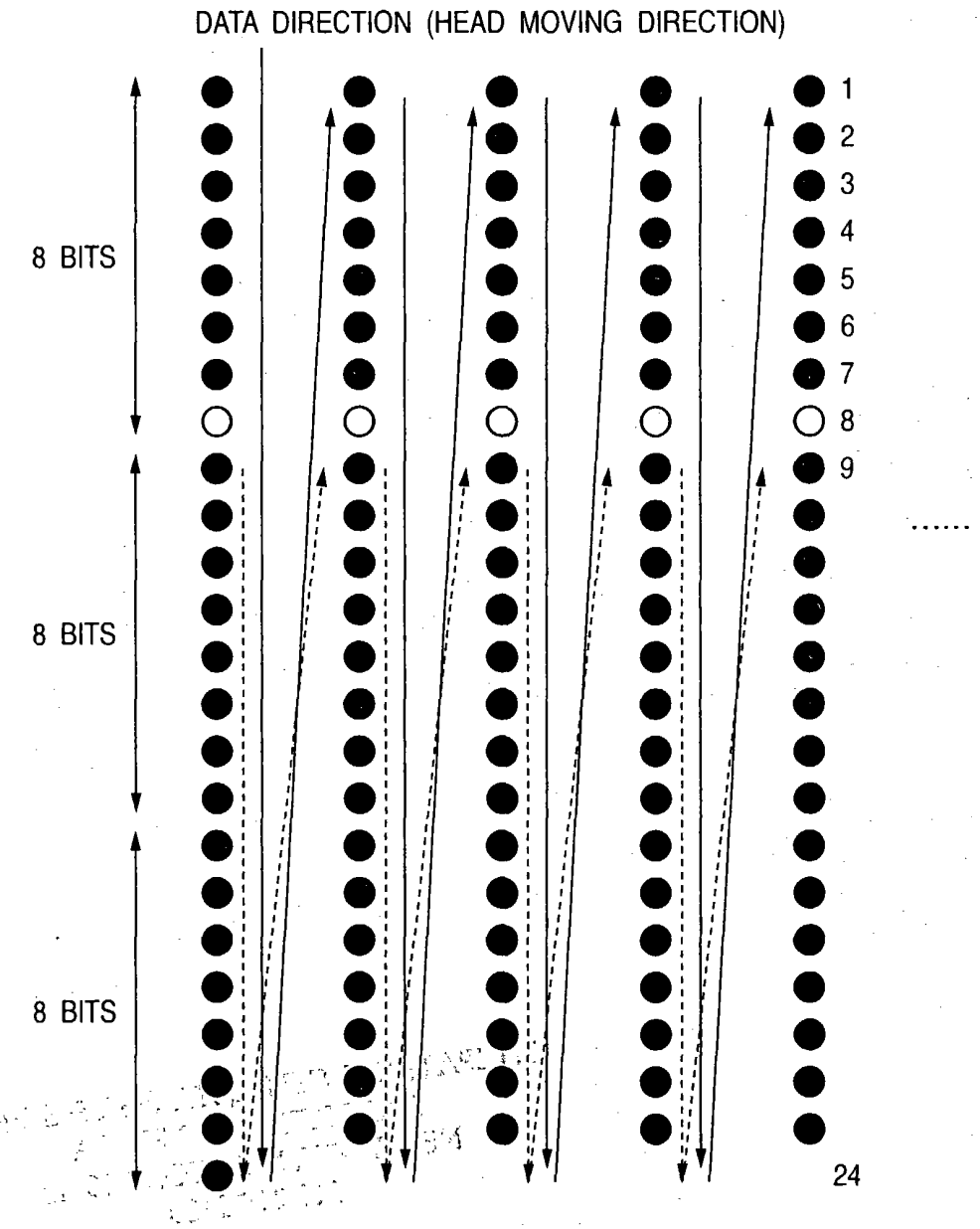

DATA DIRECTION (HEAD MOVING DIRECTION)
HEAD DIRECTION
1
2
3
4
5
6
7
8
24

FIG. 16


DATA DIRECTION (HEAD MOVING DIRECTION)
8 BITS
8 BITS
8 BITS
1
2
3
4
5
6
7
8
9
24